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### **Mink numbers low in PCB-laden Hudson River, study finds**

*Scat-detecting dogs sniff out variation between Hudson and less contaminated river*

Researchers have confirmed that mink populations are reduced along New York's Hudson River, which is contaminated with polychlorinated biphenyls, or PCBs. The cat-size semi-aquatic mammals, known for their soft fur, are exposed to high levels of the toxic chemicals through their diet of fish and small animals, and the soil and water of their riverine habitat.

The dangers to mink are documented in a new peer-reviewed, multi-year study commissioned by the Hudson River Natural Resource Trustees. Scat-detecting dogs helped researchers find and collect mink scat. Individual mink in the region were identified through DNA, and experts used that information to estimate population density, ultimately concluding that approximately 40% fewer mink live along the Hudson River than in its tributary Mohawk River. The primary distinction between these two rivers is the Hudson River's significant PCB contamination.

"Decades of PCB contamination continue to have severe and adverse effects on entire populations of animals, such as mink, in the Hudson River," said Kathryn Jahn, Department of the Interior's Case Manager for the Hudson River Natural Resource Damage Assessment. "Habitat and wildlife restoration, or land protection, by General Electric to help address this problem could begin at any time."

For the study, published in June 2018 in Nature's [\*Scientific Reports\*](#) research journal, trained dogs from the Conservation Canines program located thousands of mink scat samples along the Mohawk and Hudson rivers in 2013 and 2014. Researchers identified individual mink through DNA analysis of scat, and used spatial modeling to estimate mink population density across large areas. These models account for imperfect detection and a mink's probable use of its habitat. The Mohawk River was chosen for its lower ambient PCB levels and similar habitat features, allowing for this river to provide a viable comparison for this study.

In the Hudson River study area, a total of 108 individuals were detected, compared to 208 individuals in the Mohawk River study area. Mink density estimates were 1.12 mink per square kilometer in 2013 and 1.18 mink per square kilometer in 2014 in the Hudson River, and 1.84 mink per square kilometer in 2013 and 1.97 mink per square kilometer in 2014 in the Mohawk River study area.

"PCBs have demonstrable detrimental effects on aquatic ecosystems, including mink, and these effects are likely to be profound and long-lasting, manifesting as population-level impacts," write the authors, who hail from the University of Massachusetts, Amherst; U.S. Geological Survey; and New York State Department of Environmental Conservation.

The study, “Large-scale variation in density of an aquatic ecosystem indicator species,” adds to previous research identifying the impact to mink from PCBs in the Hudson River. Wild mink along the Hudson River contain relatively high concentrations of PCBs in their bodies (Mayack and Loukmas 2001). Captive mink fed a diet including Hudson River PCB contaminated fish at environmentally relevant concentrations exhibited significant adverse effects, including but not limited to inhibited growth and increased death of their young (Bursian et al. 2013a, 2013b). Baby mink born to mothers fed a diet made with PCB-contaminated fish from the Hudson River were much more likely to die early in life than those that ate food with less PCB contamination. Adults in that 2013 study also developed lesions in their jaw bones. Other research regarding mink exposed to PCBs found that jaw cysts and lesions eventually cause the mink’s teeth to shift and fall out.

Mink live along rivers, diving for fish and eating frogs, birds, mice and other wildlife. As mink eat PCB-contaminated wildlife, and as they swim and crawl through water, sediment and soil containing PCBs, the persistent chemical builds up in their bodies. Along the Hudson River, Trustees have found PCB levels in snapping turtles exceed those associated with latent mortality in young; in bullfrogs, they exceed levels associated with physical malformations; and in birds, they exceed levels associated with reproductive impairment.

The study is the latest demonstration of the Trustees’ documentation of natural resource injuries from General Electric’s releases of PCBs to the Hudson River from its manufacturing facilities in Hudson Falls and Fort Edward, New York. The Trustees may seek to restore mink through the Natural Resource Damage Assessment and Restoration process by, for example, seeking protection for land along rivers and streams or improving mink’s access to habitat with clean food, sediment, soil and water.

### **About the Hudson River Natural Resource Trustees**

The Trustee agencies are the U.S. Department of Commerce, the U.S. Department of the Interior and the State of New York. These entities have each designated representatives that possess the technical knowledge and authority to perform natural resource damage assessments. For the Hudson River, the National Oceanic and Atmospheric Administration represents the Department of Commerce; the U.S. Fish and Wildlife Service represents the Department of the Interior (including the National Park Service); and the New York State Department of Environmental Conservation represents the State of New York. The Comprehensive Environmental Response, Compensation and Liability Act gives Natural Resource Trustees the authority to measure harm to natural resources, including the land, fish, wildlife, biota, air and water, and seek compensation for those injuries.